

**HIGH-THROUGHPUT BIOMOLECULAR CRYSTALLIZATION AND**  
**BIOMOLECULAR CRYSTAL SCREENING**

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**ABSTRACT OF THE DISCLOSURE**

10 The present invention provides a method for the acoustic ejection of fluid droplets  
from fluid-containing reservoirs to form arrays suitable for high-throughput  
combinatorial crystallization experiments. Such arrays may utilize very small fluid  
volumes, in the order of picoliters. The method is especially suited to preparing  
combinatorial libraries useful in developing techniques for crystallizing  
biomacromolecules, such as proteins. The small volumes conserve macromolecules that  
may be costly and rare, and permit the testing of a large number of experimental  
15 crystallization conditions for a given amount of a macromolecule. The time required for  
the experiments may be very short due to the small volumes. The invention is conducive  
to forming high-density microarrays of small volume crystallization experiments.  
Acoustic detection of crystals *in situ*, and distinction between biomacromolecular and  
non-biomacromolecular crystals, are also taught.

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